

IN THE CLAIMS:

Please amend Claims 1, 3, 4 and 6 to 13 as shown below. The claims, as pending in the subject application, now read as follows:

1. (Amended) An image processing method comprising:

a numerical signal generation step of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

a bit conversion ~~exchange~~ step of generating and outputting, from the output signal in said numerical signal generation step being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit ~~the bits~~ in the input signal has ~~[[have]]~~ been reversed; and

a control step of controlling the bit order exchange operation or the bit value reversal operation in said bit conversion ~~exchange~~ step,

wherein image data divided into pixel data and one-dimensionally arranged and stored in a memory is read and output in synchronism with the sequential operation in said numerical signal generation step, and the output signal generated in said bit conversion ~~exchange~~ step is read and output as an address signal, so that a rotation and/or reversal ~~rotation/reversal~~ process to a former image is performed.

2. (Original) A method according to Claim 1, wherein an input two-dimensional image is represented by an aggregate of the pixel data, and all the pixel data are one-dimensionally arranged and transferred to the memory in synchronism with the clock signal.

3. (Currently amended) A method according to Claim 1, wherein, in said bit conversion exchange step, plural kinds of bit conversions exchanges can be performed, and one of the plural kinds of bit conversions exchanges is selected and output according to an angle of rotation or a kind of reversal.

4. (Currently amended) An image processing apparatus comprising:
numerical signal generation means for sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;
bit conversion exchange means for generating and outputting, from the output signal of said numerical signal generation means being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit ~~the bits~~ in the input signal has ~~[[have]]~~ been reversed;

control means for controlling the bit order exchange operation or the bit reversal operation of said bit conversion exchange means; and

storage means for storing image data, wherein the image data divided into pixel data and one-dimensionally arranged and stored in said storage means is read and output in synchronism with the sequential operation of said numerical signal generation means, and the output signal generated by said bit conversion exchange means is read and output as an address signal, so that a rotation and/or reversal ~~rotation/reversal~~ process to a former image is performed.

5. (Original) An apparatus according to Claim 4, wherein an input two-dimensional image is represented by an aggregate of the pixel data, and all the pixel data are one-dimensionally arranged and transferred to said storage means in synchronism with the clock signal.

6. (Currently amended) An apparatus according to Claim 4, wherein said bit conversion ~~exchange~~ means can perform plural kinds of bit conversions ~~exchanges~~, and selects and outputs one of the plural kinds of bit conversions ~~exchanges~~ according to an angle of rotation or a kind of reversal.

7. (Currently amended) An image processing method comprising:
a numerical signal generation step of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;
a bit conversion ~~exchange~~ step of generating and outputting, from the output signal in said numerical signal generation step being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit ~~the bits~~ in the input signal has ~~[[have]]~~ been reversed; and

a control step of controlling the bit order exchange operation or the bit reversal operation in said bit conversion ~~exchange~~ step,

wherein image data is written in a memory in synchronism with the sequential operation in said numerical signal generation step and by using the output signal generated in said bit conversion ~~exchange~~ step as an address signal, and the image data written in the memory

is read according to addresses of predetermined order, so that a rotation and/or reversal ~~rotation/reversal~~ process to a former image is performed.

8. (Currently amended) An image processing apparatus comprising:

numerical signal generation means for sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

bit conversion ~~exchange~~ means for generating and outputting, from the output signal of said numerical signal generation means being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit ~~the bits~~ in the input signal has ~~[[have]]~~ been reversed;

control means for controlling the bit order exchange operation or the bit value reversal operation of said bit conversion ~~exchange~~ means; and

storage means for storing image data, wherein the image data is written in said storage means in synchronism with the sequential operation of said numerical signal generation means and by using the output signal generated by said bit conversion ~~exchange~~ means as an address signal, and the image data written in said storage means is read according to addresses of predetermined order, so that a rotation and/or reversal ~~rotation/reversal~~ process to a former image is performed.

9. (Currently amended) A storage medium which stores a control program to

control an image processing apparatus, said program comprising:

a numerical signal generation module of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

a bit conversion exchange module of generating and outputting, from the output signal in said numerical signal generation module being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit ~~the bits~~ in the input signal have been reversed; and

a control module of controlling the bit order exchange operation or the bit value reversal operation in said bit conversion exchange module,

wherein image data divided into pixel data and one-dimensionally arranged and stored in a memory is read and output in synchronism with the sequential operation in said numerical signal generation module, and the output signal generated in said bit conversion exchange module is read and output as an address signal, so that a rotation and/or reversal rotation/reversal process to a former image is performed.

10. (Currently amended) A storage medium which stores a control program to control an image processing apparatus, said program comprising:

a numerical signal generation module of sequentially generating and outputting regular binary numerical signals in synchronism with a clock signal;

a bit conversion exchange module of generating and outputting, from the output signal in said numerical signal generation module being managed as an input signal, a signal that order of bits in the input signal has been exchanged or a signal that value of bit ~~the bits~~ in the input signal has ~~[[have]]~~ been reversed; and

a control module of controlling the bit order exchange operation or the bit value reversal operation in said bit conversion exchange module,

wherein image data is written in a memory in synchronism with the sequential operation in said numerical signal generation module and by using the output signal generated in said bit conversion ~~exchange~~ module as an address signal, and the image data written in the memory is read according to addresses of predetermined order, so that a rotation and/or reversal ~~rotation/reversal~~ process to a former image is performed.

11. (Currently amended) An image processing method comprising:

an input step of inputting a block image and positional information of the block image;

an image rotation and/or reversal ~~rotation/reversal~~ processing step of rotating or reversing the input block image by a block, and outputting the rotated or reversed block image; and

a conversion step of converting the positional information of the input block image into the positional information of the image after the rotation or the reversal,

wherein the conversion in said conversion step is a process corresponding to the content of the image rotation or the image reversal in said image rotation and/or reversal ~~rotation/reversal~~ processing step, and in the conversion, the positional information for the entire image before the rotation or the reversal where the block image stands is converted into the positional information for the entire image after the image rotation or the image reversal in said image rotation and/or reversal ~~rotation/reversal~~ processing step, and the converted positional information is added to the rotated or reversed block image and output.

12. (Currently amended) An image processing apparatus comprising:

input means for inputting a block image and positional information of the block image;

image rotation and/or reversal ~~rotation/reversal~~ processing means for rotating or reversing the input block image by a block, and outputting the rotated or reversed block image;

and

conversion means for converting the positional information of the input block image into the positional information of the image after the rotation or the reversal,

wherein the conversion by said conversion means is a process corresponding to the content of the image rotation or the image reversal by said image rotation and/or reversal ~~rotation/reversal~~ processing means, and in the conversion, the positional information for the entire image before the rotation or the reversal where the block image stands is converted into the positional information for the entire image after the image rotation or the image reversal by said image rotation and/or reversal ~~rotation/reversal~~ processing means, and the converted positional information is added to the rotated or reversed block image and output.

13. (Currently amended) A storage medium which stores a control program to control an image processing apparatus, said control program comprising:

an input module of inputting a block image and positional information of the block image;

an image rotation and/or reversal ~~rotation/reversal~~ processing module of rotating or reversing the input block image by a block, and outputting the rotated or reversed block image; and

a conversion module of converting the positional information of the input block image into the positional information of the image after the rotation or the reversal, wherein the conversion in said conversion module is a process corresponding to the content of the image rotation or the image reversal in said image rotation and/or reversal ~~rotation/reversal~~ processing module, and in the conversion, the positional information for the entire image before the rotation or the reversal where the block image stands is converted into the positional information for the entire image after the image rotation or the image reversal in said image rotation and/or reversal ~~rotation/reversal~~ processing module, and the converted positional information is added to the rotated or reversed block image and output.